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EXAMINER	
DONADO, FRANK E	

ART UNIT	PAPER NUMBER
4173	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/591,600	MALIK ET AL.	
	Examiner	Art Unit	
	FRANK DONADO	4173	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/25/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 9, 16 and 17 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 8, 10 and 11, respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 6-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Choi, et al **(US PG Publication 2003/0091066)**. Henceforth, Choi, et al, will be referred to as Choi.

Regarding claim 1, Choi teaches a wireless communication method comprising the steps of: detecting a signal indicating no expected response or intent to continue in a received signal **(A response frame is in error so the signal indicates no intent to continue, Paragraph 54)**; and redefining frame timing to reduce the inter-frame space

when the signal is detected **(A retransmission frame is retransmitted during a Short Interframe Space (SIFS) period, instead of the well-known Point Coordination Function Interframe Space (PIFS) that includes a time during which an Access Point pre-empts access to the medium in addition to the SIFS period used for normal response frames, Paragraph 54, lines 6-9)**.

Regarding claim 6, Choi teaches a transmitter used in a station in a wireless communication system, wherein said transmitter transmits a signal indicating no expected response or intent to continue **(A response frame is in error so the signal has indicated no intent to continue, Paragraph 54)**.

Regarding claim 7, Choi teaches a receiver used in a station in a wireless communication system, comprising: means for detecting a signal indicating no expected response or intent to continue in a received signal **(A response frame is in error so the signal has indicated no intent to continue, Paragraph 54)**; and means for redefining frame timing to reduce the inter-frame space when the signal is detected **(A retransmission frame is retransmitted during a Short Interframe Space (SIFS) period, instead of the well-known Point Coordination Function Interframe Space (PIFS) that includes a time during which an Access Point pre-empts access to the medium in addition to the SIFS period used for normal response frames, Paragraph 54, lines 6-9)**.

Regarding claim 8, Choi teaches a method for reducing medium access overhead in a wireless network consisting of a plurality of stations, wherein the station dynamically alters the inter-frame space by redefining interpretation of the inter-frame space **(A retransmission frame is retransmitted during a Short Interframe Space (SIFS) period, instead of the well-known Point Coordination Function Interframe Space (PIFS) that includes a time during which an Access Point pre-empts access to the medium in addition to the SIFS period used for normal response frames, Paragraph 54, lines 6-9)**, said method comprising the steps of: detecting a signal indicating no expected response or intent to continue in a received signal **(A response frame is in error so the signal has indicated no intent to continue, Paragraph 54)**; and redefining the interpretation of the inter-frame space to contain shorter time slot when the signal is detected **(A retransmission frame is retransmitted during a Short Interframe Space (SIFS) period, instead of the well-known Point Coordination Function Interframe Space (PIFS) that includes a time during which an Access Point pre-empts access to the medium in addition to the SIFS period used for normal response frames, Paragraph 54, lines 6-9)**.

Regarding claim 9, Choi teaches a method for reducing medium access overhead in a wireless network consisting of a plurality of stations, wherein the station dynamically alters the inter-frame space by redefining interpretation of the inter-frame space (**A retransmission frame is retransmitted during a Short Interframe Space (SIFS) period, instead of the well-known Point Coordination Function Interframe**

Space (PIFS) that includes a time during which an Access Point pre-empts access to the medium in addition to the SIFS period used for normal response frames, Paragraph 54, lines 6-9), said method comprising the steps of: detecting a signal indicating no expected response or intent to continue in a received signal **(A response frame is in error so the signal has indicated no intent to continue, Paragraph 54)**; and redefining the interpretation of the inter-frame spaces to contain fewer time slots when the signal is detected **(A retransmission frame is retransmitted during a Short Interframe Space (SIFS) period, instead of the well-known Point Coordination Function Interframe Space (PIFS) that includes a time during which an Access Point pre-empts access to the medium in addition to the SIFS period used for normal response frames, Paragraph 54, lines 6-9)**.

Regarding claim 10, Choi teaches the method according to claim 8, wherein the station, on detecting a signal indicating an expected response or intent to continue in a received signal **(A response frame is in error so the signal has indicated no intent to continue, Paragraph 54)**, interprets: a first idle time slot subsequent to a transmission as being reserved for signaled response/continuation **(A normal transmission is the busy medium in Figure 4, the first idle time slot after the transmission is called the SIFS, and the SIFS period is defined as the time during which a response occurs, Paragraph 40, lines 3-4)**; a second idle time slot subsequent to the transmission as being reserved to gain prioritized medium access **(A normal transmission is the busy medium in Figure 4, the second idle time slot**

after the transmission is called the PIFS, where PIFS, as is commonly known in the art, is defined as the time during which prioritized medium access occurs); and a third idle time slot subsequent to the transmission as being the minimum time that a station waiting to initiate a transmission on a medium must wait before commencing backoff procedure or initiating the transmission **(A normal transmission is the busy medium in Figure 4, the third idle time slot after the transmission is called the Distributed Coordination Function Interframe Space (DIFS), where DIFS, as is commonly known in the art, is defined as the time a station must wait before commencing backoff or initiating the transmission)**.

Regarding claim 11, Choi teaches the method according to claim 8, wherein the station, on detecting a signal indicating no expected response or intent to continue in a received signal **(A response frame is in error so the signal has indicated no intent to continue, Paragraph 54)**, interprets: a first idle time slot subsequent to a transmission as being reserved to gain prioritized medium access **(After a transmission error, which is a signal indicating no response is expected, a station waits a time period equal to SIFS instead of PIFS, Paragraph 54, lines 4-9)**; and a second idle time slot subsequent to the transmission being the minimum time that a station waiting to initiate a transmission on a medium must wait before commencing backoff procedure or initiating the transmission **(A backoff is performed after the medium is indicated to be idle after a time period equal to PIFS instead of DIFS, Paragraph 59, lines 3-8)**.

Regarding claim 12, Choi teaches a method for reducing medium access overhead **(Paragraph 13, lines 6-9 and Paragraph 43, lines 1-2)** in a wireless network consisting of a plurality of stations **(Wireless QoS stations (QSTA's) that compete for access to the medium, Paragraph 30, lines 6-9)**, wherein the station dynamically alters inter-frame space by redefining interpretation of the inter-frame space **(After a transmission error, which is a signal indicating no response is expected, a station waits a time period equal to SIFS instead of PIFS, Paragraph 54, lines 4-9)**, said method comprising the steps of: checking a medium activity indicator determining the end of activity on the medium **(An indicator, defined as PHY-CCA.INDICATION, reports whether a medium is busy, or idle. If it is busy, it has a value of PHY-CCA.INDICATION (busy). If it is idle, it has a value of PHY-CCA.INDICATION (idle). A Hybrid Coordinator (HC) checks to determine an end of a transmission frame by checking the PHY-CCA.INDICATION, Paragraph 46, lines 2-5 and Step 520 in Figure 5)**; and redefining the interpretation of the inter-frame space to contain shorter time-slot when the medium activity indicator is checked **(When the PHY-CCA.INDICATION has a value of busy, for example, and the HC backoff and recovery rules are in effect, the timeslots can be made shorter so that the retransmission may occur after a time slot that is less than the previous well-known, Paragraph 43, lines 1-4, Paragraph 44, lines 1-5 and Paragraph 71, lines 3-6)**.

Regarding claim 13, Choi teaches a method for reducing medium access overhead **(Paragraph 13, lines 6-9 and Paragraph 43, lines 1-2)** in a wireless network consisting of a plurality of stations **(Wireless QoS stations (QSTA's) that compete for access to the medium, Paragraph 30, lines 6-9)**, wherein the station dynamically alters inter-frame space by redefining interpretation of the inter-frame spaces **(After a transmission error, which is a signal indicating no response is expected, a station waits a time period equal to SIFS instead of PIFS, Paragraph 54, lines 4-9. In redefining interpretation of another interframe space, a backoff is performed after the medium is indicated to be idle after a time period equal to PIFS instead of DIFS, Paragraph 59, lines 3-8)**, said method comprising the steps of: checking a medium activity indicator determining the end of activity on the medium **(An indicator, defined as PHY-CCA.INDICATION, reports whether a medium is busy, or idle. If it is busy, it has a value of PHY-CCA.INDICATION (busy). If it is idle, it has a value of PHY-CCA.INDICATION (idle). A Hybrid Coordinator (HC) checks to determine an end of a transmission frame by checking the PHY-CCA.INDICATION, Paragraph 46, lines 2-5 and Step 520 in Figure 5)**; and redefining the interpretation of the inter-frame spaces to contain fewer time-slots when the medium activity indicator is checked **(When the PHY-CCA.INDICATION has a value of busy, for example, and the HC backoff and recovery rules are in effect, the timeslots can be made shorter so that the retransmission may occur after a time slot that is less than the previous well-known, Paragraph 43, lines 1-4, Paragraph 44, lines 1-5 and Paragraph 71, lines 3-6)**.

Regarding claim 14, Choi teaches a method for reducing medium access overhead **(Paragraph 13, lines 6-9 and Paragraph 43, lines 1-2)** in a wireless network consisting of a plurality of stations **(Wireless QoS stations (QSTA's) that compete for access to the medium, Paragraph 30, lines 6-9)**, wherein the station dynamically alters the inter-frame space by redefining the interpretation of the inter-frame space **(After a transmission error, which is a signal indicating no response is expected, a station waits a time period equal to SIFS instead of PIFS, Paragraph 54, lines 4-9)**, said method comprising the steps of: resetting a medium activity indicator when no medium activity is indicated at the instant of time that activity is expected as indicated by the medium activity indicator **(An indicator, defined as PHY-CCA.INDICATION, reports whether a medium is busy, or idle. If it is busy, it has a value of PHY-CCA.INDICATION (busy). If it is idle, it has a value of PHY-CCA.INDICATION (idle). If no medium activity is detected after a response is expected, the Hybrid Coordinator may perform a backoff, indicating that a retransmission/resetting occurs under these conditions, Paragraph 44, lines 1-4)**; and redefining the interpretation of the inter-frame space to contain shorter time-slot when the medium activity indicator is reset **(As opposed to the well-known DIFS time that occurs before a backoff, a PIFS waiting time occurs. Steps 520, 530 and 540 of Figure 5 define what happens when a response is expected and none is received.)**

Regarding claim 15, Choi teaches a method for reducing medium access overhead **(Paragraph 13, lines 6-9 and Paragraph 43, lines 1-2)** in a wireless network consisting of a plurality of stations **(Wireless QoS stations (QSTA's) that compete for access to the medium, Paragraph 30, lines 6-9)**, wherein the station dynamically alters the inter-frame space by redefining the interpretation of the inter-frame spaces **(After a transmission error, which is a signal indicating no response is expected, a station waits a time period equal to SIFS instead of PIFS, Paragraph 54, lines 4-9. In redefining interpretation of another interframe space, a backoff is performed after the medium is indicated to be idle after a time period equal to PIFS instead of DIFS, Paragraph 59, lines 3-8)**, said method comprising the steps of: resetting a medium activity indicator when no medium activity is indicated at the instant of time that activity is expected as indicated by the medium activity indicator **(An indicator, defined as PHY-CCA.INDICATION, reports whether a medium is busy, or idle. If it is busy, it has a value of PHY-CCA.INDICATION (busy). If it is idle, it has a value of PHY-CCA.INDICATION (idle). If no medium activity is detected after a response is expected, the Hybrid Coordinator may perform a backoff, indicating that a retransmission/resetting occurs under these conditions, Paragraph 44, lines 1-4);** and redefining the interpretation of the inter-frame spaces to contain fewer time-slots when the medium activity indicator is reset **(When the PHY-CCA.INDICATION has a value of busy, for example, and the HC backoff and recovery rules are in effect, the timeslots can be made shorter so that the retransmission may occur after a time slot that is less than the previous**

well-known, Paragraph 43, lines 1-4, Paragraph 44, lines 1-5 and Paragraph 71, lines 3-6)

Regarding claim 16, Choi teaches the method according to claim 9, wherein the station, on detecting a signal indicating an expected response or intent to continue in a received signal **(A response frame is in error so the signal has indicated no intent to continue, Paragraph 54)**, interprets: a first idle time slot subsequent to a transmission as being reserved for signaled response/continuation **(A normal transmission is the busy medium in Figure 4, the first idle time slot after the transmission is called the SIFS, and the SIFS period is defined as the time during which a response occurs, Paragraph 40, lines 3-4)**; a second idle time slot subsequent to the transmission as being reserved to gain prioritized medium access **(A normal transmission is the busy medium in Figure 4, the second idle time slot after the transmission is called the PIFS, where DIFS, as is commonly known in the art, is defined as the time during which prioritized medium access occurs)**; and a third idle time slot subsequent to the transmission as being the minimum time that a station waiting to initiate a transmission on a medium must wait before commencing backoff procedure or initiating the transmission **(A normal transmission is the busy medium in Figure 4, the third idle time slot after the transmission is called the Distributed Coordination Function Interframe Space (DIFS), where DIFS, as is commonly known in the art, is defined as the time a station must wait before commencing backoff or initiating the transmission)**.

Regarding claim 17, Choi teaches the method according to claim 9, wherein the station, on detecting a signal indicating no expected response or intent to continue in a received signal **(A response frame is in error so the signal has indicated no intent to continue, Paragraph 54)**, interprets: a first idle time slot subsequent to a transmission as being reserved to gain prioritized medium access **(After a transmission error, which is a signal indicating no response is expected, a station waits a time period equal to SIFS instead of PIFS, Paragraph 54, lines 4-9)**; and a second idle time slot subsequent to the transmission being the minimum time that a station waiting to initiate a transmission on a medium must wait before commencing backoff procedure or initiating the transmission **(A backoff is performed after the medium is indicated to be idle after a time period equal to PIFS instead of DIFS, Paragraph 59, lines 3-8)**.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi.

Regarding claims 2-4., Choi teaches the method according to claim 1. Choi fails to teach said signal is included in a header, preamble or footer of a frame. It would have been obvious matter of design choice to one of ordinary skill in the art at the time of the invention to modify the invention of Choi to place the signal information in the header, preamble or footer of the frame for the benefit of simply transmitting the signal, since there are no unexpected results when placing the information in any of the three locations, only trade-offs in design.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Choi, in view of Yang, et al **(US PG Publication 2005/0163150)**. Henceforth, Yang, et al, will be referred to as Yang.

Regarding claim 5, Choi teaches the method according to claim 1. Choi fails to teach said signal is in the form of an additional subcarrier or combination of subcarriers in a multicarrier symbol of a frame. Yang teaches each said signal is in the form of an additional subcarrier or combination of subcarriers in a multicarrier symbol of a frame **(Figures 4b and 4c indicate a redefining of the Interframe space, from an extended Interframe space to the well-known DIFS, when a station receives a frame with error (no intent to continue), in a mutiplex communications system that uses Orthogonal Frequency Division Multiplexing, which by definition uses mult-carriers in its signal transmission, Paragraph 51, lines 9-12)** It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Yang to use Orthogonal Frequency Division Multiple Access instead of a system built on Carrier Sense Multiple Access as a matter of design choice for the benefit of overcoming interference/collisions of signals being transmitted by stations.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent No. 6,577,630 refers to a self-configuring source-aware bridging for noisy media.

US PG Publication 2007/0058665 refers to unified channel access for supporting quality of service (QoS) in a local area network.

US PG Publication 2004/0071154 refers to achieving high priority and bandwidth efficiency in a shared communications medium.

US PG Publication 2005/0025131 refers to medium access control in wireless local area network.

US PG Publication 2005/0157747 refers to a wireless communication method following a distributed coordination function rule.

US PG Publication 2005/0063405 refers to a method for processing data packets received via a first interface and device for carrying out the method.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANK DONADO whose telephone number is (571) 270-5361. The examiner can normally be reached on Monday-Thursday, 7:30 am -5 pm, alternate Fridays, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benny Tieu can be reached on 571-272-7490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Lewis G. West/

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